Reprinted from "True Comics" Magazine.

MAN-MADE MIRACLE

MAN IS ALWAYS SEEKING WAYS TO MAKE LIFE BETTER. TODAY, ON THE THRESHOLD OF THE "CHEMICAL AGE," WE HAVE MAN-MADE CHEMICAL MIRACLES THAT FILL HUMAN NEEDS. ONE OF THE MOST MIRACULOUS OF THESE IS **RAYON**.

MODERN RAYON IS ONLY ABOUT 30 YEARS OLD. BUT THE IDEA FOR A MAN-MADE TEXTILE FIBER WAS CONCEIVED OVER 300 YEARS AGO BY AN ENGLISH NATURALIST.

I have thought there might be a way found to make an artificial glutinous composition much resembling, if not fully as good, nay, if not better, than any existing fiber. This hint may, I hope, give some ingenious, inquisitive person an occasion of making some trials

Robert Hooke
1664

TECHNICAL DATA SUPPLIED BY AMERICAN VISCOSE CORPORATION

NOT UNTIL A CENTURY LATER DID "INQUISITIVE" SCIENTISTS TRY TO MAKE A FIBER. THEY FOUND THAT A SUBSTANCE CALLED CELLULOSE, PRESENT IN ALL TREES AND PLANTS, MIGHT BE USED TO MAKE A FIBER. BUT THEY FAILED UNTIL, IN 1855, AS A SWISS CHEMIST EXPERIMENTED...

HOOKE WAS CRAZY—AND SO ARE YOU!

CRAZY, AM I? IF THIS THREAD ISN'T THE START OF MAKING FIBER, MY NAME ISN'T GEORGE AUDEMARS!

WITH CHEMICALS, AUDEMARS HAD CHANGED CELLULOSE INTO A LIQUID — A BASIC STEP IN TODAY'S RAYON MANUFACTURING PROCESS. HIS METHOD WAS NOT PRACTICAL — HE DID NOT FORCE THE LIQUID THROUGH TINY HOLES AS INSECTS DO.

THEN, IN 1880, IN THE LABORATORY OF ENGLISH SIR JOSEPH SWAN...

AGAIN I HAVE FAILED TO MAKE AN INEXPENSIVE FILAMENT FOR THE NEW ELECTRIC BULB — EVEN WITH THIS INSTRUMENT I DEVISED FOR FORCING LIQUID CELLULOSE THROUGH FINE HOLES, CREATING LONG UNBROKEN THREADS!

YOU'RE TIRED! I'LL BRING YOU SOME MILK.

I CROCHETED THIS DOILY FROM YOUR DISCARDED FILAMENTS.

I NEVER THOUGHT OF BULB FILAMENTS FOR FABRICS!

THUS, SWAN HAD STUMBLED ON A PRACTICAL WAY OF SPINNING A FIBER BY FORCING IT THROUGH SMALL HOLES. BUT IT WAS TOO COSTLY.

SCIENTISTS THEN TRIED TO PRODUCE A FIBER LESS EXPENSIVELY. IN FRANCE, IN 1889...

PASTEUR'S STUDENT, HILAIRE DE CHARDONNET, IS TRYING TO MAKE FIBER IN A TEST TUBE. FOOLISH MAN!

BUT THAT SAME YEAR...

HILAIRE, I CAN HARDLY WAIT TO WEAR THAT GOWN OF YOUR NEW FIBER.

YES, MY DEAR WIFE SHALL BE THE FIRST TO WEAR A DRESS MADE OF FIBER BUILT BY MAN.

PARIS EXHIBITION 1889

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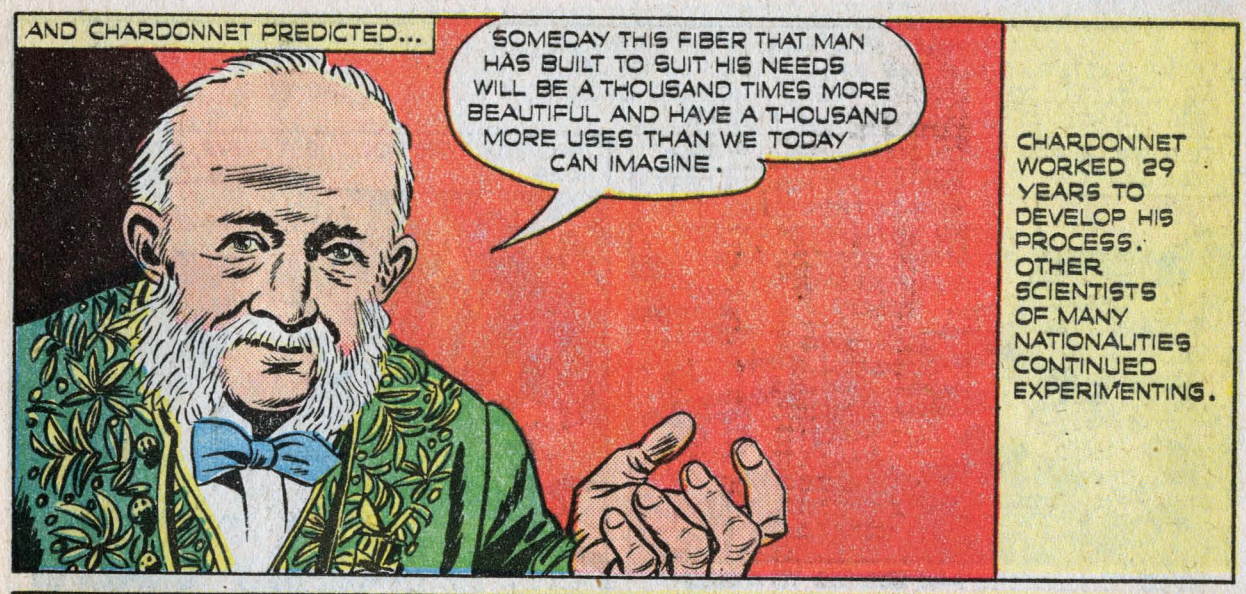
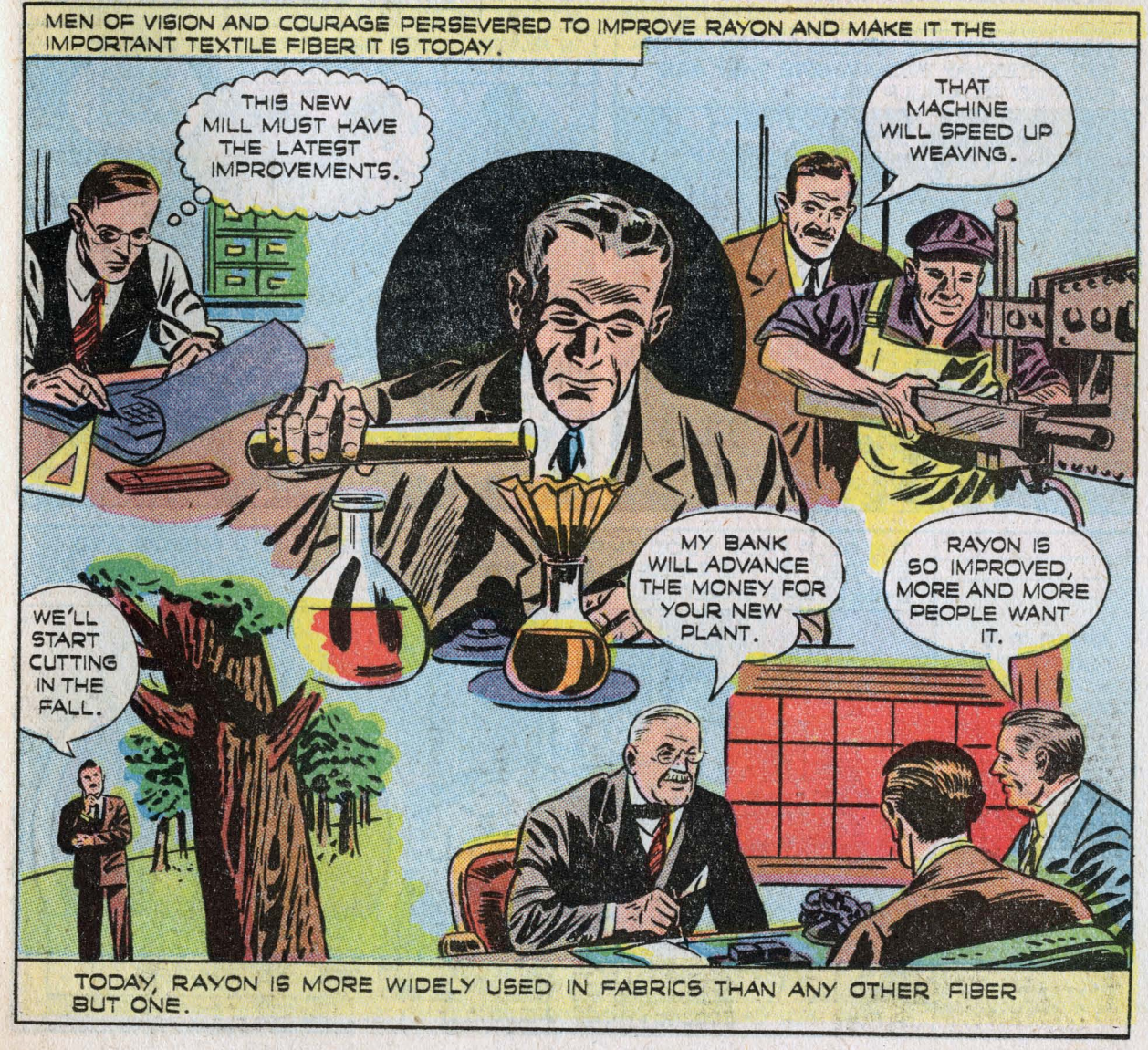

AND CHARDONNET PREDICTED...
SOMEDAY THIS FIBER THAT MAN HAS BUILT TO SUIT HIS NEEDS WILL BE A THOUSAND TIMES MORE BEAUTIFUL AND HAVE A THOUSAND MORE USES THAN WE TODAY CAN IMAGINE.
CHARDONNET WORKED 29 YEARS TO DEVELOP HIS PROCESS. OTHER SCIENTISTS OF MANY NATIONALITIES CONTINUED EXPERIMENTING.


MEN OF VISION AND COURAGE PERSEVERED TO IMPROVE RAYON AND MAKE IT THE IMPORTANT TEXTILE FIBER IT IS TODAY.
THIS NEW MILL MUST HAVE THE LATEST IMPROVEMENTS.
THAT MACHINE WILL SPEED UP WEAVING.
WE'LL START CUTTING IN THE FALL.
MY BANK WILL ADVANCE THE MONEY FOR YOUR NEW PLANT.
RAYON IS SO IMPROVED, MORE AND MORE PEOPLE WANT IT.
TODAY, RAYON IS MORE WIDELY USED IN FABRICS THAN ANY OTHER FIBER BUT ONE.

THE 300-YEAR SEARCH FOR MAN-MADE FIBER LED TO TODAY'S PROCESS OF RAYON MANUFACTURING. BUT THE BASIC PRINCIPLE REMAINS THE SAME. CELLULOSE, A **SOLID**, IS REDUCED TO A **LIQUID**, THEN HARDENED BACK TO A **SOLID** IN THE FORM OF FILAMENTS WHICH ARE TEXTILE FIBERS.

CELLULOSE FOR RAYON COMES FROM WOOD AND COTTON.

THE SHORT FIBERS LEFT ON THE COTTON SEED, AFTER BEING SEPARATED FROM THE COTTON, ARE USED FOR MAKING RAYON.

THE COTTON LINTERS ARE COOKED TO A PULP.

GETTING THE WOOD IS A HARD, DANGEROUS JOB.

TIM-M-M-M-MBER!

THE CUT LOGS ARE HAULED TO THE NEAREST WATERWAY FROM WHERE THEY ARE FLOATED TO A PULP MILL.

IN RIVERS, LOGS ARE PUSHED BY DARING LUMBERJACK LOG DRIVERS.

WATCH THOSE RAPIDS!

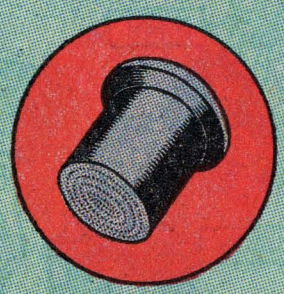
AFTER THE LOGS ARE SORTED, CUT INTO SHORT LENGTHS, AND CHOPPED INTO TINY CHIPS, THEY ARE COOKED INTO PULP.

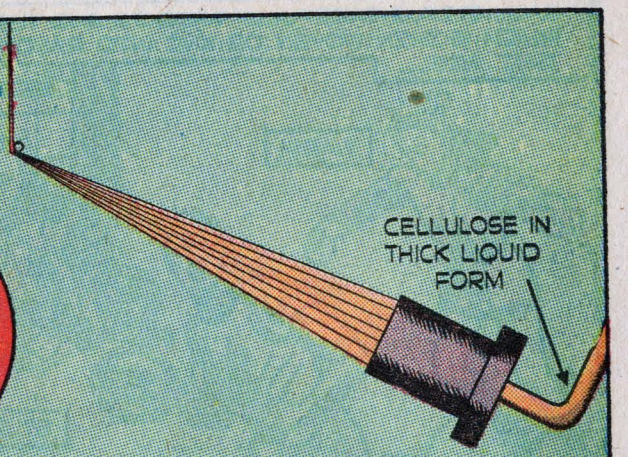
THE PULP FROM WOOD CHIPS OR LINTERS IS PRESSED INTO SHEETS AND SHIPPED TO THE RAYON PLANT. AFTER CHEMICAL TREATMENT, THE SHEETS ARE SHREDDED INTO "CRUMB," AND...

...A FURTHER CHEMICAL PROCESS TURNS IT INTO...

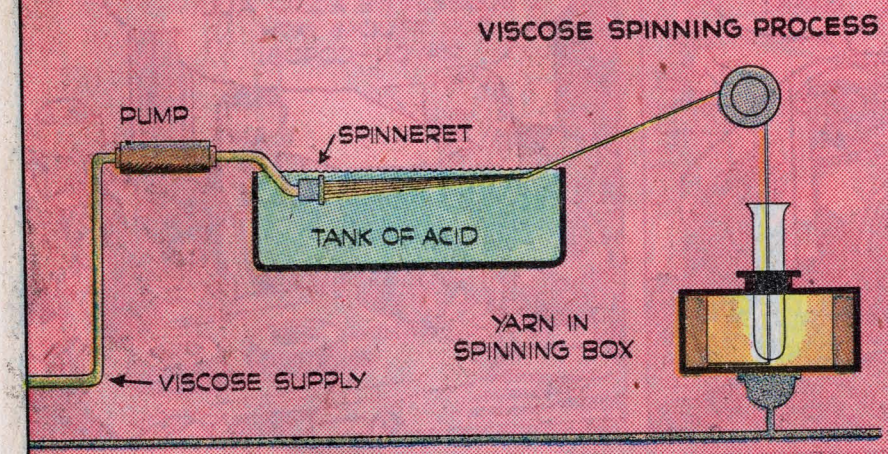
...A MOLASSES-LIKE LIQUID READY FOR THE SPINNING PROCESS.

SPINNING CONSISTS OF FORCING THE STICKY SOLUTION THROUGH A NOZZLE OR SPINNERET ABOUT THE SIZE OF A SMALL THIMBLE HAVING MANY TINY HOLES. THE SPINNERET IS MADE OF PLATINUM TO PERMIT ACCURATE DRILLING OF SUCH FINE HOLES.



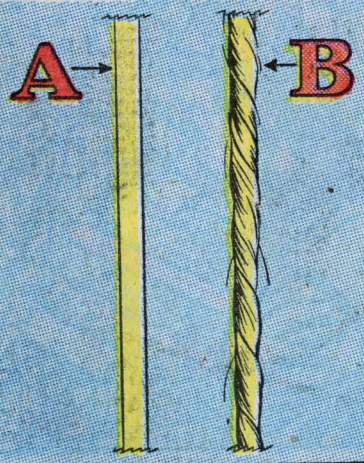


CELLULOSE IS TRANSFORMED INTO RAYON BY THREE PROCESSES WHICH DIFFER IN DETAILS BUT FOLLOW THE SAME PRINCIPLE OF **SOLID** TO **LIQUID** TO **SOLID**. TWO-THIRDS OF ALL TODAY'S RAYON IS MADE BY THE VISCOSE PROCESS.



THE VISCOSE SOLUTION IS PUMPED THROUGH A PIPE AND OUT THROUGH A SPINNERET IN FINE STREAMS, INTO AN ACID BATH. THE ACTION OF THE ACID HARDENS THE FINE STREAMS OF LIQUID INTO SOLID FILAMENTS. THESE FILAMENTS PASS OVER WHEELS AND INTO A RAPIDLY REVOLVING CYLINDRICAL BOX WHERE THEY FORM A CAKE OF FINISHED TWISTED YARN, READY FOR WASHING AND BLEACHING.

A RAYON MADE IN THIS WAY IS KNOWN AS "FILAMENT RAYON"— LONG, CONTINUOUS, UNBROKEN, SMOOTH STRANDS.



B RAYON MAY ALSO BE MADE OR CUT INTO SHORT, EXACT LENGTHS WHICH ARE TWISTED TOGETHER (SPUN) INTO YARN CALLED "SPUN RAYON."

EACH STEP IS CAREFULLY WATCHED AND TESTED, TO PRODUCE THE PERFECT THREAD WHICH IS THEN WOVEN OR KNIT INTO RAYON FABRICS. RAYON CAN BE MADE INTO FABRICS THAT ARE...

WARM

COOL

FIRM

STURDY

SHEER

SOFT

RAYON ALSO HAS IMPORTANT INDUSTRIAL USES. FOR EXAMPLE...

THESE TIRES SURE STAND THE GAFF!

IN U.S. ARMY TESTS, RAYON-CORD TIRES GAVE LONGER TIRE LIFE, GREATER MILEAGE, AND INCREASED SAFETY. I SUGGEST WE EQUIP **ALL** OUR TRUCKS WITH RAYON-CORDS!

AS MORE RAYON IS USED FOR DIFFERENT PURPOSES, PRODUCTION COSTS GO DOWN, SO PEOPLE PAY LESS FOR THE FINISHED PRODUCT. AND AS MORE PEOPLE USE MORE RAYON, MORE JOBS ARE CREATED IN RAYON MANUFACTURING, AND IN RELATED INDUSTRIES SUCH AS LUMBERING, COTTON RAISING, WEAVING, DYEING, AND SELLING.

RAYON FLANNEL

RAYON VELVET

SPUN RAYON TWEED

RAYON CREPE

BECAUSE RAYON IS MAN-MADE, IT CAN BE DESIGNED TO SUIT A WIDE VARIETY OF NEEDS. HERE'S A TYPICALLY MODERN ROOM IN WHICH ALL FABRICS – UPHOLSTERY, AS WELL AS CLOTHING – ARE MADE OF RAYON, OR RAYON COMBINED WITH OTHER FIBERS.

THESE SHEER CURTAINS ARE SO PRETTY, AND THEY'LL WASH EASILY! WELL, DAUGHTER, HOW DO YOU LIKE YOUR NEW ROOM?

LOVE IT! MMM – RAYON TAFFETA FEELS LUXURIOUS!

AW, RAYON IS SISSY STUFF!

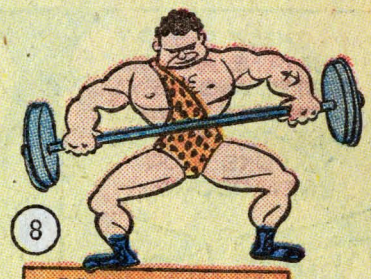
HOLD ON, SON – WHAT ABOUT THIS STURDY RUG – WOOL, MOHAIR AND RAYON? AND THERE'S RAYON IN YOUR FOOTBALL PANTS, AND BELIEVE IT OR NOT, IN YOUR SHOE LINING!

YES, TODAY'S RAYON IS FAR STRONGER, LONGER WEARING, AND MORE BEAUTIFUL THAN YESTERDAY'S. BUT TOMORROW'S RAYON WILL BE EVEN MORE PERFECT – FOR SCIENTISTS WILL BUILD IT THAT WAY.

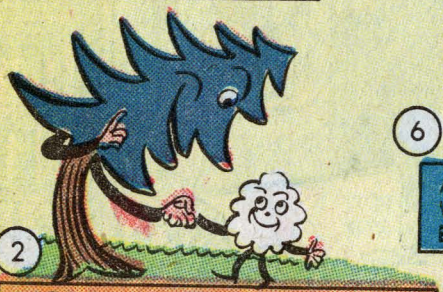
JUST FOR FUN See If You Can Fill in the Answers

1. _____ IS ONE OF OUR BASIC TEXTILE FIBERS.

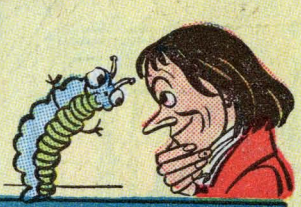
5. THESE ARE RAYON _____.



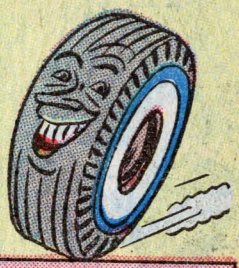
8. SOME RAYON IS VERY _____.



2. BASIC RAW MATERIAL FOR RAYON IS _____ WHICH IS OBTAINED FROM _____ AND _____.

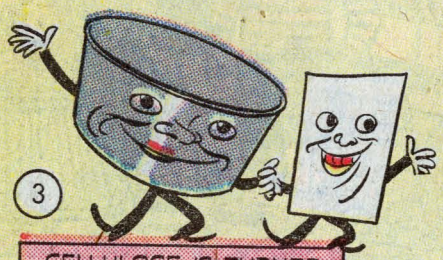


6. A MAN-MADE FIBER WAS FIRST SUGGESTED BY _____.

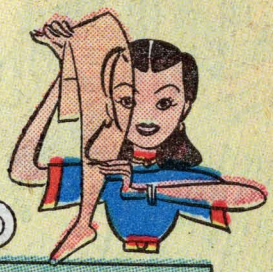


9. AN IMPORTANT USE FOR STRONG RAYON IS _____.

7. _____ STUMBLED ON A METHOD OF MAKING TEXTILE FIBERS.



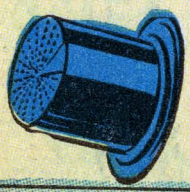
3. CELLULOSE IS TURNED INTO A STICKY LIQUID BY _____.



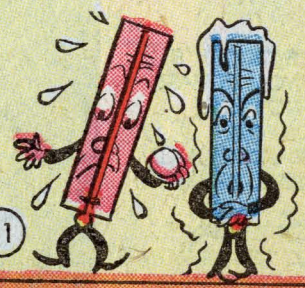
10. SOME RAYON IS VERY _____.

ANSWERS

1. Rayon
2. Cellulose; wood; cotton
3. Chemicals
4. Spinneret
5. Filaments
6. Robert Hooke
7. Sir Joseph Swan
8. Strong
9. Tire cords
10. Sheer
11. Warm; cool



4. THIS THIMBLE-SIZE DEVICE IS CALLED A _____.



11. RAYON FABRICS CAN KEEP YOU _____ OR _____.

AMERICAN VISCOSE CORPORATION

America's largest producer of rayon

350 Fifth Avenue, New York 1, N. Y.